



FAME Mechanisms

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Mechanism Status



Mechanism	Stand-down Design	Current Baseline
LV-FV Separation System	LV Provided	No Change
SC-Interstage Separation System	Marmon Clamp/ Kick-off Spring Cartridges	No Change
Star Tracker Cover System	2 Covers, Multi-use	No Change
Solar Array Arm Assy		
--Panel Hinges	Qty.: 12	Eliminated
--Web Hinges	Qty.: 36	Eliminated
--Struts	Qty.: 6	Eliminated
--Latches	Qty.: 18 (min)	Eliminated
--Release Mechanisms	Qty.: 12	Eliminated
Trim Mass System	2 Masses, 2 Motors	No Change
Radiation Trim Tab System	3 Tabs, 3 Motors, 2 Hinges/Tab	No Change
Trim Area Control Surfaces	3 Areas, 3 Motors, 6 Pivots	No Change



Mechanism Trade Studies (1 of 2)



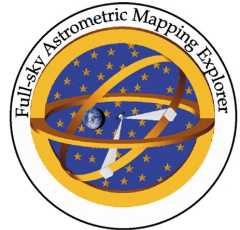
Mechanism	Trade Study	Comments
LV-FV Separation System	None	LV Provided
SC-Interstage Separation System		
--Marmon Clamp	None	See SRR Trades
--Kick-off Spring Cartridges	None	Velocity/Volume are Design Drivers
Star Tracker Cover System		Multi-use Requirement
--Baffle	NEMO Door vs. ICM/DSPSE Cover	NEMO Door Design Wins: low part count, simpler design
--Actuator	Motor vs. Paraffin Actuator	Motor Wins: better cost & thermal properties, simple design
--Release Mechanism	Pin Puller vs. No Rel. Mech.	Pin Puller Wins: vibration concern
--Door Rotation	Hinge vs. Drive Train	Hinge Wins: Less parts, simpler design
--Door Motion	Sliding vs. Toilet Seat	Toilet Seat Wins: Less parts, simple design
Solar Array Arm Assy	Eliminated	N/A



Mechanism Trade Studies (2 of 2)



Mechanism	Trade Study	Comments
Trim Mass System	None	Mass Movement Resolution is Main Cost Driver
Radiation Trim Tab System		
--Motor	None	See SRR Trades, Angle Resolution is Main Cost Driver
--Hinge	None	
--Release Mechanism (Hold Down)	Pin Puller vs. No Rel. Mech.	Pin Puller Wins: vibration concern
Trim Area Control Surfaces		
--Motor	None	Angle Resolution is Main Cost Driver
--Area Rotation Method	Opposing Sector Gears vs. Idler gear	Still Under Trade
--Pivots	None	
--Release Mechanism (Hold Down)	Pin Puller vs. No Rel. Mech.	Still Under Trade



Schedule Drivers (1 of 2)



Mechanism

Schedule Impact

Comments

LV-FV Separation System	None	LV Provided
SC-Interstage Separation System		
--Marmon Clamp	CAD: 03/01/02 (?) - 26 Weeks (ARO) Pyro Procurement	Pyros are long lead item, may impact pyroshock test date
--Kick-off Spring Cartridges	None	
Star Tracker Cover System		
--Baffle	10/01/01 Selection (?)	Assuming NEMO design, need to award contract
--Actuator	CAD: 01/02/02 (?)	Motors are long lead items, may impact test schedule
--Release Mechanism	CAD: 07/01/02 (?) - 12 Weeks (ARO) Pin Puller Procurement	Need pin pullers for QTP/ATP
Solar Array Arm Assy	Major Schedule Relief	

CAD = Contract Award Date

ARO = After Receipt of Order



Schedule Drivers (2 of 2)



Mechanism	Schedule Impact	Comments
Trim Mass System	CAD: 01/02/02 (?)	Motors are long lead items, r impact test schedule
Radiation Trim Tab System		
--Motor	CAD: 01/02/02 (?)	Motors are long lead items, r impact test schedule
--Hinge	None	
	CAD: 07/01/02 (?) - 12 We	
--Release Mechanism (Hold Down) (ARO) Pin Puller Procurement		Need pin pullers for QTP/ATP
Trim Area Control Surfaces		
--Motor	CAD: 01/02/02 (?)	Motors are long lead items, r impact test schedule
--Area Rotation Method	Unknown	Sector gears may be long le items
--Pivots	None	
	CAD: 07/01/02 (?) - 12 We	
--Release Mechanism (Hold Down) (ARO) Pin Puller Procurement		Need pin pullers for QTP/ATP

CAD = Contract Award Date

ARO = After Receipt of Order



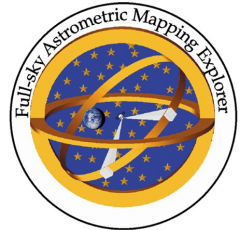
Candidate De-scopes & Costs



- Further Candidate De-scopes Depend on Requirement Changes and Program Reductions

Eliminate...	Save... HW Costs	HW + Labor
Solar Array Mechanisms	\$ 445K	\$925K
Star Tracker Covers	\$ 275K	~\$325K
- Only Motors	\$ 105K	~\$155K
Trim Masses	\$ 343K	~\$393K
Trim Areas	\$ 328K	~\$380K
Trim Tabs	\$ 376K	~\$426K

Note: All costs are approximate!



Issues

- Need to verify procurement schedule (based on spending profile) meets master launch schedule

